

**APPENDIX M**  
**ECOLOGICAL RISK ASSESSMENT**

**Table M-1. SERA Surface and Subsurface Soil Data Groupings for  
Deseret Chemical Depot, Tooele, Utah**

<b>Surface Soil (0 – 0.5 ft bls)</b>	<b>Sample IDs</b>
SWMU 11	SB-11-001A, -002A, -004A through -020A
SWMU 19	S-SS-19-03, S-SS-19-06, SB-19-002A through SB-19-007A, S-SS-19-04
SWMU 33B – Outside Building	SS-33-001 through SS-33-004, SS-33-013 through SS-33-025, SB-33B-30 through SB-33B-56, SB-33-001A and B through SB-33-003A and B
SWMU 33C – Drainage Swale	TP-33-001A through TP-33-008A
SWMU 37 – Pit Floor	SB-37-001A through SB-37-010A
SWMU 37 – Slope	SB-37-11 through SB-37-21
<b>Subsurface Soil (0.5 – 15 ft bls)<sup>a</sup></b>	
SWMU 11	SB-11-001B through -020B
SWMU 19	S-SS-19-01, S-SS-19-02, S-SS-19-06, SB-19-001B, SB-19-002B, SB-19-007B, SB-19-007D, S-SS-19-04
SWMU 20	SB-20-03 through SB-20-12
SWMU 33B – Outside Building	SB-33-001C through SB-33-003C, SB-33B-30 through SB-33B-56
SWMU 33C – Drainage Swale	TP-33-001B, C, and D through TP-33-008B, C, and D
SWMU 37 – Pit Floor	SB-37-001B through SB-37-010B, TP-37-001B and D, TP-37-002B and D
SWMU 37 – Slope	SB-37-11 through SB-37-21
<b>Background</b>	
	3-BK-1 and -2, 31-BK-1 and -2, 5-BK-1 and -2, 8-BK-1 and -2, 9-BK-1 and -2, S-SS-05-BK, S-SS-08-BK, S-SS-10-BK, S-SS-14-BK, S-SS-19-BK, S-SS-22-BK, S-SS-26-BK, S-SS-27-BK, S-SS-29-BK, S-SS-36-BK, SB-BK-01 through SB-BK-10

<sup>a</sup> Subsurface soil data were collected from a number of different intervals within the 0.5 – 15 feet interval. See Appendix K for depth information corresponding to specific samples.

**Table M-2. Terrestrial Bioaccumulation Factors for Ecological Chemicals of Potential Concern  
Deseret Chemical Depot, Tooele, Utah**

Ecological Chemical of Potential Concern	Soil-to-Plant (SP <sub>v</sub> )			Animal-to-Animal (BAF <sub>v</sub> )		
	C <sub>i</sub> /C <sub>s</sub> (kg <sub>soil</sub> /kg <sub>tissue</sub> )	Reference	CF	SP <sub>v</sub> (C <sub>i</sub> /C <sub>s</sub> *CF)	BAF <sub>v</sub> (kg <sub>soil</sub> /kg <sub>tissue</sub> )	Reference
<b>Inorganics</b>						
Aluminum	4.00E-03	Baes et al. (1984)	0.2	8.00E-04	7.5E-02	HAZWRAP (1994)
Antimony	2.00E-01	Baes et al. (1984)	0.2	4.00E-02	5.00E-02	HAZWRAP (1994)
Arsenic	4.00E-02	Baes et al. (1984)	0.2	8.00E-03	1.00E-01	HAZWRAP (1994)
Barium	1.50E-01	Baes et al. (1984)	0.2	3.00E-02	7.50E-03	HAZWRAP (1994)
Beryllium	1.00E-02	Baes et al. (1984)	0.2	2.00E-03	5.00E-02	HAZWRAP (1994)
Cadmium	5.50E-01	Baes et al. (1984)	0.2	1.10E-01	2.80E-02	HAZWRAP (1994)
Calcium	3.50E+00	Baes et al. (1984)	0.2	7.00E-01	0.1 <sup>a</sup>	--
Chromium	7.50E-03	Baes et al. (1984)	0.2	1.50E-03	2.80E-01	HAZWRAP (1994)
Cobalt	2.00E-02	Baes et al. (1984)	0.2	4.00E-03	1.00E+00	HAZWRAP (1994)
Copper	4.00E-01	Baes et al. (1984)	0.2	8.00E-02	5.00E-01	HAZWRAP (1994)
Iron	4.00E-03	Baes et al. (1984)	0.2	8.00E-04	0.1 <sup>a</sup>	--
Lead	4.50E-02	Baes et al. (1984)	0.2	9.00E-03	1.50E-02	HAZWRAP (1994)
Magnesium	1.00E+00	Baes et al. (1984)	0.2	2.00E-01	0.1 <sup>a</sup>	--
Manganese	2.50E-01	Baes et al. (1984)	0.2	5.00E-02	2.00E-02	HAZWRAP (1994)
Mercury	9.00E-01	Baes et al. (1984)	0.2	1.80E-01	1.30E+01	HAZWRAP (1994)
Nickel	6.00E-02	Baes et al. (1984)	0.2	1.20E-02	3.00E-01	HAZWRAP (1994)
Silver	4.00E-01	Baes et al. (1984)	0.2	8.00E-02	1.50E-01	HAZWRAP (1994)
Thallium	4.00E-03	Baes et al. (1984)	0.2	8.00E-04	0.1 <sup>a</sup>	--
Zinc	1.50E+00	Baes et al. (1984)	0.2	3.00E-01	5.00E+00	HAZWRAP (1994)
<b>Organics</b>						
Acenaphthene	2.00E-02	HAZWRAP (1994)	1	2.00E-02	1.20E-02	HAZWRAP (1994)
Benzo(a)anthracene	3.90E-03	HAZWRAP (1994)	1	3.90E-03	7.60E-01	HAZWRAP (1994)
Benzo(a)pyrene	2.60E-03	HAZWRAP (1994)	1	2.60E-03	1.50E+00	HAZWRAP (1994)
Bis(2-ethylhexyl)phthalate	8.70E-03	HAZWRAP (1994)	1	8.70E-03	1.90E-01	HAZWRAP (1994)
Butylbenzylphthalate	2.00E-02	HAZWRAP (1994)	1	2.00E-02	1.20E-01	HAZWRAP (1994)
4-Chloroaniline	2.00E-02	HAZWRAP (1994)	1	2.00E-02	9.50E-05	HAZWRAP (1994)
Chrysene	3.90E-03	HAZWRAP (1994)	1	3.90E-03	7.60E-01	HAZWRAP (1994)
Dibenzofuran	2.00E-02	HAZWRAP (1994)	1	2.00E-02	1.90E-02	HAZWRAP (1994)
Di-n-butylphthalate	7.60E-03	HAZWRAP (1994)	1	7.60E-03	2.40E-01	HAZWRAP (1994)
Naphthalene	2.00E-02	HAZWRAP (1994)	1	2.00E-02	6.00E-03	HAZWRAP (1994)
<b>Explosives</b>						
2,4,6-Trinitrotoluene	NA	--	--	0.5 <sup>a</sup>	10 <sup>a</sup>	--

NA = Not Available

BAF = Bioaccumulation factor; i = invertebrate (kg<sub>soil</sub>/kg<sub>tissue</sub>), v = vertebrate (kg<sub>tissue</sub>/kg<sub>tissue</sub>)

C<sub>i</sub> = Chemical concentration in tissue (mg/kg<sub>tissue</sub>)

C<sub>s</sub> = Chemical concentration in soil (mg/kg<sub>soil</sub>)

CF = Conversion factor, dry weight to wet weight; 0.2 for dry weight values assuming tissue is 80% water (HAZWRAP 1994) and 1 for wet weight values.

<sup>a</sup> Default value

**Table M-3. Toxicity Reference Values for Terrestrial Plants Exposed to Soil  
Deseret Chemical Depot, Tooele, Utah**

Ecological Chemical Potential Category	Terrestrial Plants <sup>a</sup> (mg/kg)
<b>Explosives</b>	
2,4,6-trinitrotoluene	30 <sup>b</sup>
<b>Organics</b>	
Acenaphthene	20
Benzo(a)anthracene	20 <sup>c</sup>
Benzo(a)pyrene	20 <sup>c</sup>
Bis(2-ethylhexyl) phthalate	100 <sup>d</sup>
Butyl benzyl phthalate	100 <sup>d</sup>
4-Chloroanilene	NA
Chrysene	20 <sup>c</sup>
Dibenzofuran	NA
Di-N-butyl Phthalate	200
Napthalene	20 <sup>c</sup>
<b>Inorganics</b>	
Aluminum	50
Antimony	5
Arsenic	10
Barium	500
Beryllium	10
Cadmium	4
Calcium	NA
Chromium	1
Cobalt	20
Copper	100
Iron	NA
Lead	50
Magnesium	NA
Manganese	500
Mercury	0.3
Nickel	30
Silver	2
Thallium	1
Zinc	50

NA = Not available

<sup>a</sup> Efrogmson et al. (1997)

<sup>b</sup> Lowest observed effect concentration (Talmage et al. 1999)

<sup>c</sup> Value for acenaphthene

<sup>d</sup> Value for diethylphthalate

Table M-4. Derivation of Mammalian Wildlife Reference Toxicity Doses  
Deseret Chemical Depot, Tooele, Utah

							Test Species Mortality	Chronic NOEL Test Species (mg/kg/d)
<b>Inorganics:</b>								
Aluminum	7429-90-5	Mouse	reproduction	chronic LOAEL	19.3	Ondreicka et al. (1966) <sup>a</sup>	10	1.93
Antimony	7440-36-0	Mouse	lifespan, longevity	chronic LOAEL	1.25	Schroeder et al. (1968b) <sup>a</sup>	10	0.125
Arsenic	7440-38-2	Mouse	reproduction	chronic LOAEL	1.26	Schroeder and Mitchner (1971) <sup>a</sup>	10	0.126
Barium	7440-39-3	Rat	growth, hypertension	chronic NOAEL	5.06	Perry et al. (1983) <sup>a</sup>	1	5.06
Beryllium	7440-41-7	Rat	longevity, weight loss	chronic NOAEL	0.66	Schroeder & Mitchner (1975) <sup>a</sup>	1	0.66
Cadmium	7440-43-9	Rat	reproduction	chronic NOAEL	1	Sutou et al. (1980) <sup>a</sup>	1	1
Calcium	7440-70-2							
Chromium	7440-47-3	Rat	reproduction, longevity	chronic NOAEL	2737	Ivankovic & Preussman (1975) <sup>a</sup>	1	2737
Cobalt	7440-48-4	Rat	mortality	acute LD50	6171	RTECS (1998)	100	61.71
Copper	7440-50-8	Mink	reproduction	chronic NOAEL	11.7	Aulerich et al. (1982) <sup>a</sup>	1	11.7
Iron	7439-89-6							
Lead	7439-92-1	Rat	reproduction	chronic NOAEL	8	Azar et al. (1973) <sup>a</sup>	1	8
Manganese	7439-96-5	Rat	reproduction	chronic NOAEL	88	Laskey et al. (1982) <sup>a</sup>	1	88
Magnesium	7439-95-4							
Mercury	7439-97-6	Mink	reproduction	chronic NOAEL	1.01	Aulerich et al. (1974) <sup>a</sup>	1	1.01
Nickel	7440-02-0	Rat	reproduction	chronic NOAEL	40	Ambrose et al. (1976) <sup>a</sup>	1	40
Silver	7440-22-4	Mouse	hypoactivity	chronic LOAEL	3.75	Rungby & Danscher (1984)	10	0.375
Thallium	7440-28-0	Rat	reproduction	subchronic LOAEL	0.74	Formigli et al. (1986) <sup>a</sup>	20	0.037
Zinc	7440-66-6	Rat	reproduction	chronic NOAEL	160	Schlicker & Cox (1968) <sup>a</sup>	1	160
<b>Organics:</b>								
Acenaphthene	83-32-9	Mouse	hepatotoxicity	subchronic NOAEL	175	US EPA (1989)	10	17.5
Bis(2-ethylhexyl)phthalate	71-43-2	Mouse	reproduction	chronic NOAEL	18.3	Lamb et al. (1987) <sup>a</sup>	1	18.3
Benzo(a)anthracene	56-55-3	Rat	carcinogenicity	chronic LOAEL	40	Eisler (1987)	10	4
Benzo(a)pyrene	50-32-8	Mouse	reproduction	chronic LOAEL	10	Mackenzie and Angevine (1981) <sup>a</sup>	10	1
Butyl Benzyl Phthalate	85-68-7							
4-Chloraniline	106-47-8							
Chrysene	218-01-9	Rat	carcinogenicity	chronic LOAEL	99	Eisler (1987)	10	9.9
Dibenzofuran	132-64-9	Dog	blood effects	chronic NOAEL	2	Duphar (1985)	1	2
Di-N-butyl Phthalate	84-74-2	Mouse	reproduction	chronic NOAEL	550	Lamb et al. (1987) <sup>a</sup>	1	550
Naphthalene	91-20-3	Mouse	mortality	subchronic LC <sub>50</sub>	700	Eisler (1987)	100	7
2,4,6-trinitrotoluene	118-96-7	Rat	testicular atrophy	chronic LOAEL	160	Talmage et al. (1999)	20	8

<sup>a</sup> As cited in Sample, Opreko, and Suter (1996).

**Table M-5. Derivation of Avian Wildlife Reference Toxicity Doses  
Deseret Chemical Depot, Tooele, Utah**

					Daily Dose (mg/kg/d)	Reference	Total Uncertainty	Chronic NOAEL Test Species (mg/kg/d)
<b>Inorganics:</b>								
Aluminum	7429-90-5	Ringed Dove	reproduction	chronic NOAEL	109.7	Carriere et al. 1986 <sup>a</sup>	1	109.7
Antimony	7440-36-0	Bobwhite Quail	mortality, feeding behavior, growth	chronic NOAEL	4900	Damron & Wilson (1975)	10	490
Arsenic	7440-38-2	Mallard Duck	mortality	chronic NOAEL	5.14	USFWS (1964) <sup>a</sup>	1	5.14
Barium	7440-39-3	1-day old chicks	mortality	subchronic NOAEL	208.3	Johnson et al. (1960) <sup>a</sup>	10	20.83
Beryllium	7440-41-7							
Cadmium	7440-43-9	Mallard Duck	reproduction	chronic NOAEL	1.45	White & Finley (1978) <sup>a</sup>	1	1.45
Calcium	7440-70-2							
Chromium	7440-47-3	Black Duck	reproduction	chronic NOAEL	1	Haseltine et al. (unpublished) <sup>a</sup>	1	1
Cobalt	7440-48-4							
Copper	7440-50-8	Chicken (chicks)	growth, mortality	chronic NOAEL	47	Mehring et al. (1960) <sup>a</sup>	1	47
Iron	7439-89-6							
Lead	7439-92-1	Japanese Quail	reproduction	chronic NOAEL	1.13	Edens et al. (1976) <sup>a</sup>	1	1.13
Manganese	7439-96-5	Japanese Quail	growth, aggressive behavior	chronic NOAEL	977	Laskey & Edens (1985) <sup>a</sup>	1	977
Magnesium	7439-95-4							
Mercury	7439-97-6	Quail	reproduction	chronic LOAEL	0.45	Hill & Schaffner (1976) <sup>a</sup>	1	0.45
Nickel	7440-02-0	Mallard (duckling)	mortality, growth, behavior	chronic NOAEL	77.4	Cain & Pafford (1981) <sup>a</sup>	1	77.4
Silver	7440-22-4	Mallard (duckling)	mortality	subchronic LOAEL	327	EPA (1995)	20	16.4
Thallium	7440-28-0	Starling	mortality	acute LD50	56.6	Schafer et al. (1983)	100	0.566
Zinc	7440-66-6	Chicken	Reproduction	chronic NOAEL	14.5	Stahl et al. (1990) <sup>a</sup>	1	14.5
<b>Organics:</b>								
Acenaphthene	83-32-9	Bobwhite Quail	mortality	subchronic LOAEL	388	HSDB (1998)	20	19.4
Benzo(a)anthracene	56-55-3	Bobwhite Quail	mortality	subchronic LOAEL	388	HSDB (1998)	20	19.4
Benzo(a)pyrene	50-32-8							
Bis(2-ethylhexyl)phthalate	71-43-2	Ringed Dove	reproduction	chronic NOAEL	1.1	Peakall (1974) <sup>a</sup>	1	1.1
Butyl Benzyl Phthalate	85-68-7							
Chrysene	218-01-9	Bobwhite Quail	mortality	subchronic LOAEL	388	HSDB (1998)	20	19.4
4-Chloraniline	106-47-8							
Dibenzofuran	132-64-9	Red-winged Blackbird	mortality	subchronic NOAEL	63.2	Schafer et al. (1983)	10	6.32
Di-N-butyl Phthalate	84-74-2	Ringed Dove	reproduction	chronic LOAEL	1.1	Peakall (1974) <sup>a</sup>	10	0.11
Napthalene	91-20-3	Bobwhite Quail	mortality	subchronic LC <sub>50</sub>	194	US EPA (1995)	100	1.94
2,4,6-trinitrotoluene	118-96-7	Bobwhite Quail	hematological and immune parameters	subchronic NOAEL	7	USACHPPM (2000)	10	0.7

<sup>a</sup> As cited in Sample, Opresko, and Suter (1996).

Table M-6. Derivation of Species-Specific Chronic NOAELs for the Black-tailed Jackrabbit  
Deseret Chemical Depot, Tooele, Utah

								Receptor Chronic NOAEL (mg/kg/d)
<b>Inorganics</b>								
Aluminum	7429-90-5	Mouse	0.03	Black-tailed Jackrabbit	2.2	1.93	0.0136	0.026
Antimony	7440-36-0	Mouse	0.03	Black-tailed Jackrabbit	2.2	0.125	0.0136	0.00170
Arsenic	7440-38-2	Mouse	0.03	Black-tailed Jackrabbit	2.2	0.126	0.0136	0.00172
Barium	7440-39-3	Rat	0.44	Black-tailed Jackrabbit	2.2	5.06	0.1977	1.00050
Beryllium	7440-41-7	Rat	0.35	Black-tailed Jackrabbit	2.2	0.66	0.159	0.105
Cadmium	7440-43-9	Rat	0.303	Black-tailed Jackrabbit	2.2	1	0.138	0.138
Calcium	7440-70-2							
Chromium	7440-47-3	Rat	0.35	Black-tailed Jackrabbit	2.2	2737	0.159	435.4
Cobalt	7440-48-4	Rat	0.35	Black-tailed Jackrabbit	2.2	61.71	0.159	9.8
Copper	7440-50-8	Mink	1.00	Black-tailed Jackrabbit	2.2	11.7	0.455	5.32
Iron	7439-89-6							
Lead	7439-92-1	Rat	0.35	Black-tailed Jackrabbit	2.2	8	0.159	1.273
Manganese	7439-96-5	Rat	0.35	Black-tailed Jackrabbit	2.2	88	0.159	14.00
Magnesium	7439-95-4							
Mercury	7439-97-6	Mink	1.00	Black-tailed Jackrabbit	2.2	1.01	0.455	0.459
Nickel	7440-02-0	Rat	0.35	Black-tailed Jackrabbit	2.2	40	0.159	6.364
Silver	7440-22-4	Mouse	0.03	Black-tailed Jackrabbit	2.2	0.375	0.014	0.0051
Thallium	7440-28-0	Rat	0.365	Black-tailed Jackrabbit	2.2	0.037	0.166	0.006
Zinc	7440-66-6	Rat	0.35	Black-tailed Jackrabbit	2.2	160	0.159	25.455
<b>Organics:</b>								
Acenaphthene	83-32-9	Mouse	0.03	Black-tailed Jackrabbit	2.2	17.5	0.0136	0.239
Bis(2-ethylhexyl)phthalate	71-43-2	Mouse	0.03	Black-tailed Jackrabbit	2.2	26.4	0.0136	0.360
Benzo(a)anthracene	56-55-3	Rat	0.35	Black-tailed Jackrabbit	2.2	4	0.159	0.6364
Benzo(a)pyrene	50-32-8	Mouse	0.03	Black-tailed Jackrabbit	2.2	1	0.0136	0.0136
Butyl Benzyl Phthalate	85-68-7							0.360 <sup>c</sup>
4-Chloroaniline	106-47-8							
Chrysene	218-01-9	Rat	0.35	Black-tailed Jackrabbit	2.2	9.9	0.159	1.5750
Dibenzofuran	132-64-9	Dog	12.70	Black-tailed Jackrabbit	2.2	2	5.7727	11.5
Di-N-butyl Phthalate	84-74-2	Mouse	0.03	Black-tailed Jackrabbit	2.2	550	0.0136	7.50
Napthalene	91-20-3	Mouse	0.03	Black-tailed Jackrabbit	2.2	7	0.0136	0.0952
2,4,6-trinitrotoluene	118-96-7	Rat	0.35	Black-tailed Jackrabbit	2.2	8	0.159	1.273

<sup>a</sup> Based on weights presented in Sample et al. (1996)

<sup>b</sup> Value from EPA (1993c)

<sup>c</sup> Value for bis(2-ethylhexyl) phthalate

Table M-7. Derivation of Species-Specific Chronic NOAELS for the Golden Eagle  
Deseret Chemical Depot, Tooele, Utah

					Receptor Weight (kg)	Test Species Chronic NOEL (mg/kg/d)	Scaling Factor	Receptor Chronic NOAEL (mg/kg/d)
<b>Inorganics:</b>								
Aluminum	7429-90-5	Ringed Dove	0.15	Golden Eagle	3.75	109.7	0.041	4.476
Antimony	7440-36-0	Bobwhite Quail	0.177	Golden Eagle	3.75	490	0.0472	23.128
Arsenic	7440-38-2	Mallard Duck	1.000	Golden Eagle	3.75	5.14	0.267	1.3707
Barium	7440-39-3	1-day old chicks	0.121	Golden Eagle	3.75	20.83	0.032	0.6721
Beryllium	7440-41-7							
Cadmium	7440-43-9	Mallard Duck	1.153	Golden Eagle	3.75	1.45	0.307	0.4458
Calcium	7440-70-2							
Chromium	7440-47-3	Black Duck	1.25	Golden Eagle	3.75	1.00	0.333	0.3333
Cobalt	7440-48-4			Golden Eagle	3.75			
Copper	7440-50-8	5-week old chicks	0.534	Golden Eagle	3.75	47	0.142	6.6928
Iron	7439-89-6			Golden Eagle	3.75			
Lead	7439-92-1	Japanese Quail	0.15	Golden Eagle	3.75	1.13	0.040	0.0452
Magnesium	7439-95-4							
Manganese	7439-96-5	Japanese Quail	0.072	Golden Eagle	3.75	977	0.019	18.7584
Mercury	7439-97-6	Japanese Quail	0.15	Golden Eagle	3.75	0.45	0.040	0.0180
Nickel	7440-02-0	Mallard (duckling)	0.78	Golden Eagle	3.75	77	0.209	16.1405
Silver	7440-22-4	Mallard (duckling)	0.79	Golden Eagle	3.75	16.4	0.209	3.4331
Thallium	7440-28-0	Starling	0.0823	Golden Eagle	3.75	0.566	0.022	0.0124
Zinc	7440-66-6	White Leghorn hen	1.94	Golden Eagle	3.75	14.5	0.516	7.4820
<b>Organics:</b>								
Acenaphthene	83-32-9	Bobwhite Quail	0.177	Golden Eagle	3.75	19.4	0.047	0.9157
Benzo(a)anthracene	56-55-3	Bobwhite Quail	0.177	Golden Eagle	3.75	19.4	0.047	0.9157
Benzo(a)pyrene	50-32-8							
Bis(2-ethylhexyl)phthalate	71-43-2	Ringed Dove	0.155	Golden Eagle	3.75	1.1	0.041	0.0455
Butyl Benzyl Phthalate	85-68-7							0.0455 <sup>c</sup>
4-Chloroaniline	106-47-8							
Chrysene	218-01-9	Bobwhite Quail	0.177	Golden Eagle	3.75	19.4	0.047	0.9157
Dibenzofuran	132-64-9	Red-winged Blackbird	0.053	Golden Eagle	3.75	6.32	0.014	0.08848
Di-N-butyl Phthalate	84-74-2	Ringed Dove	0.155	Golden Eagle	3.75	0.11	0.041	0.00455
Napthalene	91-20-3	Bobwhite Quail	0.177	Golden Eagle	3.75	1.94	0.047	0.09157
2,4,6-trinitrotoluene	118-96-7	Bobwhite Quail	0.177	Golden Eagle	3.75	0.7	0.047	0.0329

<sup>a</sup> Based on weights presented in Sample et al. (1996)

<sup>b</sup> Value from EPA (1993c)

<sup>c</sup> Value for bis(2-ethylhexyl) phthalate



**TABLE M-8. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
TERRESTRIAL PLANTS AT SWMU 11  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg)	Surface Soil Conc. <sup>b</sup> (mg/kg)	Plant HQ
Magnesium	No TRV	15,955	No TRV
Manganese	500	496	0.991
Total Hazard Index			0.991

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Concentrations are the lower of the 95% UCL or maximum presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-9. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
BLACK-TAILED JACKRABBIT AT SWMU 11  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Surface Soil Dose <sup>b</sup> (mg/kg-day)	Surface Soil HQ	Plant Dose <sup>b</sup> (mg/kg-day)	Plant HQ	Total Dose (mg/kg-day)	Total HQ
Magnesium	No TRV	21	No TRV	654	No TRV	675	No TRV
Manganese	14	0.640	0.0457	5.08	0.363	5.72	0.409
Total Hazard Index			0.0457		0.363		0.409

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-10. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
GOLDEN EAGLE AT SWMU 11  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Animal Dose <sup>b</sup> (mg/kg-day)	Animal HQ	Total Dose (mg/kg-day)	Total HQ
Magnesium	No TRV	39	No TRV	39	No TRV
Manganese	19	0.00670	0.000357	0.00670	0.000357
Total Hazard Index			0.000357		0.000357

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-11. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
TERRESTRIAL PLANTS AT SWMU 11  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg)	Subsurface Soil Conc. <sup>b</sup> (mg/kg)	Plant HQ
Lead	50	44	0.880
Magnesium	No TRV	15,984	No TRV
Total Hazard Index			0.880

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Concentrations are the lower of the 95% UCL or maximum presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-12. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
BLACK-TAILED JACKRABBIT AT SWMU 11  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Subsurface Soil Dose <sup>b</sup> (mg/kg-day)	Subsurface Soil HQ	Plant Dose <sup>b</sup> (mg/kg-day)	Plant HQ	Total Dose (mg/kg-day)	Total HQ
Lead	1.27	0.0568	0.0446	0.0811	0.0637	0.138	0.108
Magnesium	No TRV	21	No TRV	655	No TRV	676	No TRV
Total Hazard Index			0.0446		0.0637		0.108

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-13. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
GOLDEN EAGLE AT SWMU 11  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Animal Dose <sup>b</sup> (mg/kg-day)	Animal HQ	Total Dose (mg/kg-day)	Total HQ
Lead	0.0452	0.000121	0.00268	0.000121	0.00268
Magnesium	No TRV	40	No TRV	40	No TRV
Total Hazard Index			0.00268		0.00268

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-14. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
TERRESTRIAL PLANTS AT SWMU 19  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg)	Subsurface Soil Conc. <sup>b</sup> (mg/kg)	Plant HQ
Arsenic	10.00	20	2.00
Lead	50	164	3.28
Total Hazard Index			5.28

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Concentrations are the lower of the 95% UCL or maximum presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-15. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
BLACK-TAILED JACKRABBIT AT SWMU 19  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Subsurface Soil Dose <sup>b</sup> (mg/kg-day)	Subsurface Soil HQ	Plant Dose <sup>b</sup> (mg/kg-day)	Plant HQ	Total Dose (mg/kg-day)	Total HQ
Arsenic	0.00172	0.00258	1.50	0.00328	1.91	0.00586	3.41
Lead	1.27	0.0212	0.0166	0.0302	0.0238	0.0514	0.0404
Total Hazard Index			1.52		1.93		3.45

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value



**TABLE M-16. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
GOLDEN EAGLE AT SWMU 19  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Animal Dose <sup>b</sup> (mg/kg-day)	Animal HQ	Total Dose (mg/kg-day)	Total HQ
Arsenic	1.37	3.432E-06	2.504E-06	3.432E-06	2.504E-06
Lead	0.0452	4.514E-06	9.987E-05	4.514E-06	9.987E-05
Total Hazard Index			0.000102		0.000102

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-17. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
TERRESTRIAL PLANTS AT SWMU 20  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg)	Subsurface Soil Conc. <sup>b</sup> (mg/kg)	Plant HQ
4-Chloroaniline	No TRV	0.403	No TRV
Benzo(a)anthracene	20	0.396	0.0198
Benzo(a)pyrene	20	0.260	0.0130
bis(2-Ethylhexyl)phthalate	100	0.371	0.00371
Butyl Benzyl Phthalate	100	0.215	0.00215
Chrysene	20	0.410	0.0205
Total Hazard Index			0.0592

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Concentrations are the lower of the 95% UCL or maximum presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-18. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
BLACK-TAILED JACKRABBIT AT SWMU 20  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Subsurface Soil Dose <sup>b</sup> (mg/kg-day)	Subsurface Soil HQ	Plant Dose <sup>b</sup> (mg/kg-day)	Plant HQ	Total Dose (mg/kg-day)	Total HQ
4-Chloroaniline	No TRV	5.211E-05	No TRV	0.000165	No TRV	0.000218	No TRV
Benzo(a)anthracene	0.636	5.120E-05	8.045E-05	3.169E-05	4.980E-05	8.289E-05	0.000130
Benzo(a)pyrene	0.0136	3.363E-05	0.00247	1.388E-05	0.00102	4.751E-05	0.00349
bis(2-Ethylhexyl)phthalate	0.359	4.787E-05	0.000133	6.611E-05	0.000184	0.000114	0.000318
Butyl Benzyl Phthalate	0.359	2.778E-05	7.737E-05	8.818E-05	0.000246	0.000116	0.000323
Chrysene	1.58	5.299E-05	3.364E-05	3.280E-05	2.083E-05	8.579E-05	5.447E-05
Total Hazard Index			0.00280			0.00152	0.00432

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-19. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
GOLDEN EAGLE AT SWMU 20  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Animal Dose <sup>b</sup> (mg/kg-day)	Animal HQ	Total Dose (mg/kg-day)	Total HQ
4-Chloroaniline	No TRV	1.210E-10	No TRV	1.210E-10	No TRV
Benzo(a)anthracene	0.916	3.688E-07	4.027E-07	3.688E-07	4.027E-07
Benzo(a)pyrene	No TRV	4.171E-07	No TRV	4.171E-07	No TRV
bis(2-Ethylhexyl)phthalate	0.0455	1.268E-07	2.786E-06	1.268E-07	2.786E-06
Butyl Benzyl Phthalate	0.0455	8.145E-08	1.790E-06	8.145E-08	1.790E-06
Chrysene	0.916	3.817E-07	4.168E-07	3.817E-07	4.168E-07
Total Hazard Index			5.396E-06		5.396E-06

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-20. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
TERRESTRIAL PLANTS AT SWMU 33B - Outside Building  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg)	Surface Soil Conc. <sup>b</sup> (mg/kg)	Plant HQ
Antimony	5.00	7.46	1.49
Cadmium	4.00	8.03	2.01
Copper	100	320	3.20
Lead	50	622	12
Mercury	0.300	28	94
Silver	2.00	6.55	3.28
Thallium	1.000	14	14
Zinc	50	397	7.94
Total Hazard Index			137

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Concentrations are the lower of the 95% UCL or maximum presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-21. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
BLACK-TAILED JACKRABBIT AT SWMU 33B - Outside Building  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Surface Soil Dose <sup>b</sup> (mg/kg-day)	Surface Soil HQ	Plant Dose <sup>b</sup> (mg/kg-day)	Plant HQ	Total Dose (mg/kg-day)	Total HQ
Antimony	0.00170	0.000963	0.567	0.00612	3.60	0.00708	4.16
Cadmium	0.138	0.00104	0.00751	0.0181	0.131	0.0191	0.139
Copper	5.32	0.0413	0.00777	0.525	0.0986	0.566	0.106
Lead	1.27	0.0803	0.0631	0.115	0.0901	0.195	0.153
Mercury	0.459	0.00362	0.00790	0.104	0.226	0.107	0.234
Silver	0.00510	0.000846	0.166	0.0107	2.11	0.0116	2.27
Thallium	0.00600	0.00175	0.291	0.000222	0.0369	0.00197	0.328
Zinc	25	0.0513	0.00201	2.44	0.0959	2.49	0.0979
Total Hazard Index			1.11	6.38		7.49	

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-22. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
GOLDEN EAGLE AT SWMU 33B - Outside Building  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Animal Dose <sup>b</sup> (mg/kg-day)	Animal HQ	Total Dose (mg/kg-day)	Total HQ
Antimony	23	2.072E-06	8.957E-08	2.072E-06	8.957E-08
Cadmium	0.446	3.137E-06	7.036E-06	3.137E-06	7.036E-06
Copper	6.69	0.00166	0.000247	0.00166	0.000247
Lead	0.0452	1.713E-05	0.000379	1.713E-05	0.000379
Mercury	0.0180	0.00816	0.453	0.00816	0.453
Silver	3.43	1.017E-05	2.964E-06	1.017E-05	2.964E-06
Thallium	0.0124	1.151E-05	0.000929	1.151E-05	0.000929
Zinc	7.48	0.0730	0.00975	0.0730	0.00975
Total Hazard Index			0.464		0.464

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-23. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
TERRESTRIAL PLANTS AT SWMU 33B - Outside Building  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg)	Subsurface Soil Conc. <sup>b</sup> (mg/kg)	Plant HQ
Beryllium	10.00	1.37	0.137
Lead	50	530	11
Manganese	500	765	1.53
Mercury	0.300	0.118	0.392
Silver	2.00	4.06	2.03
Zinc	50	424	8.48
Total Hazard Index			23

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Concentrations are the lower of the 95% UCL or maximum presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value



**TABLE M-24. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
BLACK-TAILED JACKRABBIT AT SWMU 33B - Outside Building  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Subsurface Soil Dose <sup>b</sup> (mg/kg-day)	Subsurface Soil HQ	Plant Dose <sup>b</sup> (mg/kg-day)	Plant HQ	Total Dose (mg/kg-day)	Total HQ
Beryllium	0.105	0.000177	0.00169	5.617E-05	0.000535	0.000233	0.00222
Lead	1.27	0.0684	0.0538	0.0978	0.0768	0.166	0.131
Manganese	14	0.0988	0.00706	0.784	0.0560	0.883	0.0631
Mercury	0.459	1.520E-05	3.312E-05	0.000434	0.000946	0.000450	0.000980
Silver	0.00510	0.000524	0.103	0.00666	1.31	0.00718	1.41
Zinc	25	0.0548	0.00215	2.61	0.102	2.66	0.105
Total Hazard Index			0.168	1.54		1.71	

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-25. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
GOLDEN EAGLE AT SWMU 33B - Outside Building  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Animal Dose <sup>b</sup> (mg/kg-day)	Animal HQ	Total Dose (mg/kg-day)	Total HQ
Beryllium	No TRV	6.823E-08	No TRV	6.823E-08	No TRV
Lead	0.0452	1.460E-05	0.000323	1.460E-05	0.000323
Manganese	19	0.000103	5.510E-06	0.000103	5.510E-06
Mercury	0.0180	3.421E-05	0.00190	3.421E-05	0.00190
Silver	3.43	6.307E-06	1.837E-06	6.307E-06	1.837E-06
Zinc	7.48	0.0779	0.0104	0.0779	0.0104
Total Hazard Index			0.0126		0.0126

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-26. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
TERRESTRIAL PLANTS AT SWMU 33C - Drainage Swale  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg)	Surface Soil Conc. <sup>b</sup> (mg/kg)	Plant HQ
Cadmium	4.00	3.44	0.861
Copper	100	56	0.560
Lead	50	202	4.04
Zinc	50	192	3.84
Total Hazard Index			9.31

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Concentrations are the lower of the 95% UCL or maximum presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-27. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
BLACK-TAILED JACKRABBIT AT SWMU 33C - Drainage Swale  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Surface Soil Dose <sup>b</sup> (mg/kg-day)	Surface Soil HQ	Plant Dose <sup>b</sup> (mg/kg-day)	Plant HQ	Total Dose (mg/kg-day)	Total HQ
Cadmium	0.138	0.000445	0.00322	0.00777	0.0563	0.00821	0.0595
Copper	5.32	0.00723	0.00136	0.0919	0.0173	0.0991	0.0186
Lead	1.27	0.0261	0.0205	0.0373	0.0293	0.0634	0.0498
Zinc	25	0.0248	0.000975	1.18	0.0464	1.21	0.0474
Total Hazard Index			0.0261	0.149		0.175	

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-28. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
GOLDEN EAGLE AT SWMU 33C - Drainage Swale  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Animal Dose <sup>b</sup> (mg/kg-day)	Animal HQ	Total Dose (mg/kg-day)	Total HQ
Cadmium	0.446	1.346E-06	3.019E-06	1.346E-06	3.019E-06
Copper	6.69	0.000290	4.334E-05	0.000290	4.334E-05
Lead	0.0452	5.565E-06	0.000123	5.565E-06	0.000123
Zinc	7.48	0.0353	0.00472	0.0353	0.00472
Total Hazard Index			0.00489		0.00489

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-29. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
TERRESTRIAL PLANTS AT SWMU 33C - Drainage Swale  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg)	Subsurface Soil Conc. <sup>b</sup> (mg/kg)	Plant HQ
Cadmium	4.00	5.05	1.26
Copper	100	78	0.779
Lead	50	322	6.45
Mercury	0.300	0.177	0.591
Nickel	30	20	0.654
Zinc	50	196	3.92
di-N-Butyl Phthalate	200	0.215	0.00108
Naphthalene	20	0.113	0.00565
Total Hazard Index			14

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Concentrations are the lower of the 95% UCL or maximum presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-30. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
BLACK-TAILED JACKRABBIT AT SWMU 33C - Drainage Swale  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Subsurface Soil Dose <sup>b</sup> (mg/kg-day)	Subsurface Soil HQ	Plant Dose <sup>b</sup> (mg/kg-day)	Plant HQ	Total Dose (mg/kg-day)	Total HQ
Cadmium	0.138	0.000652	0.00473	0.0114	0.0825	0.0120	0.0873
Copper	5.32	0.0101	0.00189	0.128	0.0240	0.138	0.0259
Lead	1.27	0.0416	0.0327	0.0595	0.0467	0.101	0.0795
Mercury	0.459	2.289E-05	4.986E-05	0.000654	0.00142	0.000677	0.00147
Nickel	6.36	0.00253	0.000398	0.00483	0.000759	0.00736	0.00116
Zinc	25	0.0253	0.000994	1.20	0.0473	1.23	0.0483
di-N-Butyl Phthalate	7.48	2.778E-05	3.714E-06	3.351E-05	4.480E-06	6.129E-05	8.193E-06
Naphthalene	0.0952	1.460E-05	0.000153	4.636E-05	0.000487	6.097E-05	0.000640
Total Hazard Index			0.0409	0.203		0.244	

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-31. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
GOLDEN EAGLE AT SWMU 33C - Drainage Swale  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Animal Dose <sup>b</sup> (mg/kg-day)	Animal HQ	Total Dose (mg/kg-day)	Total HQ
Cadmium	0.446	1.974E-06	4.428E-06	1.974E-06	4.428E-06
Copper	6.69	0.000403	6.025E-05	0.000403	6.025E-05
Lead	0.0452	8.881E-06	0.000196	8.881E-06	0.000196
Mercury	0.0180	5.150E-05	0.00286	5.150E-05	0.00286
Nickel	16	1.293E-05	8.010E-07	1.293E-05	8.010E-07
Zinc	7.48	0.0360	0.00481	0.0360	0.00481
di-N-Butyl Phthalate	0.00455	8.610E-08	1.892E-05	8.610E-08	1.892E-05
Naphthalene	0.0916	2.141E-09	2.338E-08	2.141E-09	2.338E-08
Total Hazard Index			0.00795		0.00795

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value



**TABLE M-32. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
TERRESTRIAL PLANTS AT SWMU 37 - Pit Floor  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg)	Surface Soil Conc. <sup>b</sup> (mg/kg)	Plant HQ
Acenaphthene	20	0.100	0.00502
Dibenzofuran	No TRV	0.0498	No TRV
Total Hazard Index			0.00502

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Concentrations are the lower of the 95% UCL or maximum presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-33. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
BLACK-TAILED JACKRABBIT AT SWMU 37 - Pit Floor  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Surface Soil Dose <sup>b</sup> (mg/kg-day)	Surface Soil HQ	Plant Dose <sup>b</sup> (mg/kg-day)	Plant HQ	Total Dose (mg/kg-day)	Total HQ
Acenaphthene	0.238	0.000130	0.000545	0.000411	0.00173	0.000541	0.00227
Dibenzofuran	12	6.426E-05	5.588E-06	0.000204	1.774E-05	0.000268	2.333E-05
Total Hazard Index			0.000550		0.00175		0.00230

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-34. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
GOLDEN EAGLE AT SWMU 37 - Pit Floor  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Animal Dose <sup>b</sup> (mg/kg-day)	Animal HQ	Total Dose (mg/kg-day)	Total HQ
Acenaphthene	0.916	3.801E-07	4.151E-07	3.801E-07	4.151E-07
Dibenzofuran	0.0885	2.984E-07	3.372E-06	2.984E-07	3.372E-06
Total Hazard Index			3.787E-06		3.787E-06

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-35. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
TERRESTRIAL PLANTS AT SWMU 37 - Pit Floor  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg)	Subsurface Soil Conc. <sup>b</sup> (mg/kg)	Plant HQ
Arsenic	10.00	21	2.07
Calcium	No TRV	188,900	No TRV
Total Hazard Index			2.07

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Concentrations are the lower of the 95% UCL or maximum presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-36. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
BLACK-TAILED JACKRABBIT AT SWMU 37 - Pit Floor  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Subsurface Soil Dose <sup>b</sup> (mg/kg-day)	Subsurface Soil HQ	Plant Dose <sup>b</sup> (mg/kg-day)	Plant HQ	Total Dose (mg/kg-day)	Total HQ
Arsenic	0.00172	0.0267	16	0.0339	20	0.0607	35
Calcium	No TRV	244	No TRV	27,107	No TRV	27,351	No TRV
Total Hazard Index			16		20		35

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-37. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
GOLDEN EAGLE AT SWMU 37 - Pit Floor  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Animal Dose <sup>b</sup> (mg/kg-day)	Animal HQ	Total Dose (mg/kg-day)	Total HQ
Arsenic	1.37	0.000355	0.000259	0.000355	0.000259
Calcium	No TRV	1,601	No TRV	1,601	No TRV
Total Hazard Index			0.000259		0.000259

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-38. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
TERRESTRIAL PLANTS AT SWMU 37 - Slope  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg)	Surface Soil Conc. <sup>b</sup> (mg/kg)	Plant HQ
Aluminum	50	23,502	470
Antimony	5.00	10	2.05
Barium	500	5,572	11
Cadmium	4.00	9.59	2.40
Chromium	1.000	51	51
Cobalt	20	21	1.06
Copper	100	1,549	15
Iron	No TRV	90,113	No TRV
Lead	50	651	13
Magnesium	No TRV	32,320	No TRV
Manganese	500	658	1.32
Nickel	30	83	2.77
Silver	2.00	26	13
Zinc	50	335	6.70
2,4,6-Trinitrotoluene	30	0.187	0.00625
Total Hazard Index			591

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Concentrations are the lower of the 95% UCL or maximum presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-39. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
BLACK-TAILED JACKRABBIT AT SWMU 37 - Slope  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Surface Soil Dose <sup>b</sup> (mg/kg-day)	Surface Soil HQ	Plant Dose <sup>b</sup> (mg/kg-day)	Plant HQ	Total Dose (mg/kg-day)	Total HQ
Aluminum	0.0260	30	1,167	3.85	148	34	1,316
Antimony	0.00170	0.0133	7.80	0.0841	49	0.0974	57
Barium	1.00	7.20	7.19	34	34	41	41
Cadmium	0.138	0.0124	0.0898	0.216	1.57	0.229	1.66
Chromium	435	0.0665	0.000153	0.0158	3.637E-05	0.0823	0.000189
Cobalt	9.81	0.0275	0.00280	0.0175	0.00178	0.0450	0.00458
Copper	5.32	2.00	0.376	25	4.78	27	5.15
Iron	No TRV	116	No TRV	15	No TRV	131	No TRV
Lead	1.27	0.841	0.661	1.20	0.944	2.04	1.60
Magnesium	No TRV	42	No TRV	1,325	No TRV	1,367	No TRV
Manganese	14	0.850	0.0607	6.75	0.482	7.60	0.543
Nickel	6.36	0.107	0.0169	0.205	0.0321	0.312	0.0490
Silver	0.00510	0.0340	6.67	0.432	85	0.466	91
Zinc	25	0.433	0.0170	21	0.810	21	0.827
2,4,6-Trinitrotoluene	1.27	0.000242	0.000190	0.0192	0.0151	0.0195	0.0153
Total Hazard Index			1,190	325		1,516	

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value



**TABLE M-40. SURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
GOLDEN EAGLE AT SWMU 37 - Slope  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Animal Dose <sup>b</sup> (mg/kg-day)	Animal HQ	Total Dose (mg/kg-day)	Total HQ
Aluminum	4.48	0.150	0.0336	0.150	0.0336
Antimony	23	0.000285	1.233E-05	0.000285	1.233E-05
Barium	0.672	0.0182	0.0271	0.0182	0.0271
Cadmium	0.446	0.000375	0.000841	0.000375	0.000841
Chromium	0.333	0.00135	0.00405	0.00135	0.00405
Cobalt	No TRV	0.00263	No TRV	0.00263	No TRV
Copper	6.69	0.802	0.120	0.802	0.120
Iron	No TRV	7.68	No TRV	7.68	No TRV
Lead	0.0452	0.00179	0.0397	0.00179	0.0397
Magnesium	No TRV	80	No TRV	80	No TRV
Manganese	19	0.00889	0.000474	0.00889	0.000474
Nickel	16	0.00548	0.000339	0.00548	0.000339
Silver	3.43	0.00409	0.00119	0.00409	0.00119
Zinc	7.48	6.16	0.823	6.16	0.823
2,4,6-Trinitrotoluene	0.0329	0.0114	0.346	0.0114	0.346
Total Hazard Index			1.40		1.40

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-41. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
TERRESTRIAL PLANTS AT SWMU 37 - Slope  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg)	Subsurface Soil Conc. <sup>b</sup> (mg/kg)	Plant HQ
Antimony	5.00	6.37	1.27
Barium	500	15,459	31
Cadmium	4.00	9.65	2.41
Copper	100	11,635	116
Iron	No TRV	254,397	No TRV
Lead	50	315	6.31
Magnesium	No TRV	51,398	No TRV
Manganese	500	910	1.82
Nickel	30	184	6.15
Silver	2.00	85	42
Zinc	50	325	6.50
Total Hazard Index			214

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Concentrations are the lower of the 95% UCL or maximum presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-42. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
BLACK-TAILED JACKRABBIT AT SWMU 37 - Slope  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Subsurface Soil Dose <sup>b</sup> (mg/kg-day)	Subsurface Soil HQ	Plant Dose <sup>b</sup> (mg/kg-day)	Plant HQ	Total Dose (mg/kg-day)	Total HQ
Antimony	0.00170	0.00823	4.84	0.0523	31	0.0605	36
Barium	1.00	20	20	95	95	115	115
Cadmium	0.138	0.0125	0.0903	0.218	1.58	0.230	1.67
Copper	5.32	15	2.82	191	36	206	39
Iron	No TRV	329	No TRV	42	No TRV	370	No TRV
Lead	1.27	0.407	0.320	0.582	0.457	0.989	0.777
Magnesium	No TRV	66	No TRV	2,107	No TRV	2,174	No TRV
Manganese	14	1.18	0.0839	9.33	0.666	11	0.750
Nickel	6.36	0.238	0.0374	0.454	0.0713	0.692	0.109
Silver	0.00510	0.109	21	1.39	272	1.50	294
Zinc	25	0.420	0.0165	20	0.785	20	0.802
Total Hazard Index			50	438	487		

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value

**TABLE M-43. SUBSURFACE SOIL  
HAZARD QUOTIENT OF ECOLOGICAL CHEMICALS OF POTENTIAL CONCERN FOR  
GOLDEN EAGLE AT SWMU 37 - Slope  
DESERET CHEMICAL DEPOT, TOOELE, UTAH**

Ecological Chemicals of Potential Concern	TRV <sup>a</sup> (mg/kg-day)	Animal Dose <sup>b</sup> (mg/kg-day)	Animal HQ	Total Dose (mg/kg-day)	Total HQ
Antimony	23	0.000177	7.657E-06	0.000177	7.657E-06
Barium	0.672	0.0505	0.0751	0.0505	0.0751
Cadmium	0.446	0.000377	0.000846	0.000377	0.000846
Copper	6.69	6.02	0.900	6.02	0.900
Iron	No TRV	22	No TRV	22	No TRV
Lead	0.0452	0.000869	0.0192	0.000869	0.0192
Magnesium	No TRV	127	No TRV	127	No TRV
Manganese	19	0.0123	0.000655	0.0123	0.000655
Nickel	16	0.0122	0.000753	0.0122	0.000753
Silver	3.43	0.0132	0.00383	0.0132	0.00383
Zinc	7.48	5.97	0.798	5.97	0.798
Total Hazard Index			1.80		1.80

<sup>a</sup> See Section 4.2.5 for TRV discussion.

<sup>b</sup> Doses are based on the lower of the 95% UCL and maximum concentrations presented in Section 4.2.4.1

HQ = Hazard Quotient

TRV = Toxicity Reference Value